

## 211-02 RHODE ISLAND ECONOMIC PROFILE

### 02-01 Introduction

This part provides a summary of Rhode Island's important economic and demographic characteristics that, at first glance, may seem more negative than positive. There may be some truth to this assessment, but a closer, more balanced appraisal reveals several strong elements within the state's economic structure. The following discussion will look first at the weaker elements.

Rhode Island has often been unable to sustain economic growth on a level with the rest of New England. A concentration of jobs in defense and manufacturing industries is a major reason for the state's lackluster growth. Some of the state's leading products such as costume jewelry and textiles are experiencing increasing competition from foreign imports and have suffered steady declines. The state's industrial base is not sufficiently diverse to compensate for the employment lost in these industries, or to provide alternative employment at comparable skill levels.

Moreover, limited land has constrained industrial location, and the education and skill levels of much of the labor force have not kept pace with an increasingly technological global economy. Incomes are low, relatively speaking, in an otherwise high-income region, depressing our standard of living.

Low wage rates limit the state's level of earned income. The state is too dependent upon transfer of payments as a source of income, and growth in Gross State Product, the measurement of a state's local output of goods and services inside its borders, lags behind both the nation and the New England region. (See Table 211-02(1))

**Table 211-02(1)**  
**PERCENT CHANGE IN GROSS US, NEW ENGLAND, AND STATE PRODUCT**  
**1990-1997**

Locale	1990	1997	Percent Change
	<b>Billion \$</b>	<b>Billion \$</b>	
US	6,136	7,182	17
NE	1,578.6	1,725.8	9
CT	105.5	110.7	4.9
ME	24.8	25.4	2.4
MA	170.5	194.7	14.2
NH	25.4	30.9	21.6
RI	23.1	23.2	>1.0
VT	12.2	13.7	12.3

**Source:** Regional Financial Associates, *Precis*, State Edition, 1997

The combination of low value added, non-durable manufacturing industries, many of which are characterized by low capital investment, and a largely unskilled or semi-skilled labor force makes Rhode Island a relatively low value added state. Value added, the difference between the cost of producing goods and the value of the goods shipped, "is considered to be the best value measure for comparing the relative economic importance of manufacturing among industries and geographic areas," according to the 1992 Census of Manufacturers.

Despite these less than ideal conditions, Rhode Island does have a number of strengths that are beginning to buttress the weaker elements of its economy. Some of the state's attributes include the Quonset Point/Davisville complex, which has added prime industrial land to the state's meager inventory. Quality programs are being developed to train the state's labor force at levels necessary to expand into the next millennium. The state appears to be actively participating in the national economic recovery and wage rates and income are improving. Some sectors of the state's economy such as boat building and financial services are growing as a result of incentive programs and government action. As capital investments in these and other growing industries increase, so will the state's value added figures.



Quonset/Davisville Photo courtesy of Rhode Island Economic Development Corporation

Other positive elements are the state's small size, which provides a sense of community that facilitates information sharing through networking and clustering among the state's growing number of small businesses. These firms are recognized by many in the state's business community as strong economic engines. Although an overreliance on defense spending is detrimental to the economy, Rhode Island's traditional connection with the U.S. Navy has proved to be an asset. Its contribution is seen

particularly in places such as the Naval Undersea Warfare Center, employing 2,900. The state is also home to several of the region's finest colleges and universities and is surrounded by the fine schools in the Boston area. These have the potential to give the state a pool of well-educated and highly skilled people from which to recruit new employees for an evolving, growth-oriented economy.

Commonly used indicators of an economy's health are changes in employment and unemployment, population, per capita personal income, gross state product, manufacturing wages, value added, housing prices, the poverty rate, and major employment sectors. The R.I. Economic Policy Council recently did an in-depth analysis of the state's economic performance indicators. This discussion will refer often to that work.

## **02-02 Demographics**

### **02-02-01 Population Changes**

The state's population increased from 947,154 in 1980 to 1,003,464 in 1990. By 1998, however according to the U.S. Census Bureau, the population had declined to 988,500.

While the population is stabilizing, the age profile is shifting dramatically. The median age rose from 31.8 years to 34 years between 1980 and 1990. The median age figure reflects a growing population of elderly residents.(See Figure 211-02(1)). In 1990 Rhode Island ranked fourth nationally in the percentage of population age 65 and over; by 1994 it ranked third,according to the Economic Policy Council. Nearly 16 percent of the population is over 65, compared to 12.7 percent nationwide. People in the older age groups will mean more Rhode Islanders relying on Social Security pensions and savings (transfer of payments) for their livelihood. The larger number of aged will also continue to exert substantial impact on the state's health care system. This statistic will affect Rhode Island families in very personal ways, and create a challenge to society to be able to give older people who are still active meaningful roles to play.

At the same time there will be a greater number of working age people who will likely be paying into the retirement systems. Those in the 20 to 64 year age group increased a critical 3.5 percent between 1985 and 1995. There were 55,000 fewer children and teenagers in 1980 than in 1970, and there were 21,083 fewer in 1990 than in 1980. While this creates a favorable situation in the short term as the baby-boom generation expands, and as pressure to absorb a huge teenage population into the workforce subsides, the smaller youth segment will create sharp changes in the population profile of the state as it ages.

As a result of the increase in Rhode Island's immigrant population, the state's minority population grew by 72 percent between 1980 and 1990. According to the Statewide Planning Program's population projections, the minority population is expected to increase by 16.5 percent between 1990 and 2000. The state's minority population is heavily concentrated in the state's larger urban areas.

Figure 211-02(1)

Projections indicate that growth of the non-white population will be concentrated in the younger age groups in which the white population will be experiencing decline. Thus the proportion of non-whites in some age sectors will increase significantly, particularly in the 15 to 19 year age range that is associated with workforce entry. Non-white teens have generally experienced higher unemployment than the corresponding white cohorts.

Historically, the state's largest ethnic groups have been Italian, French and French-Canadian, Irish, English, and Portuguese. The 1990 U.S. census revealed these groups comprised 16.4, 15.7, 14.0, 10.4, and 7.7 percent respectively of the Rhode Island population. The state's most recent immigrants have largely come from the countries of Latin America and Southeast Asia (Institute for Labor Studies and Research, 1992). In the period 1980-1990, the Asian/Pacific Islander population grew by 245 percent, and the Hispanic population by 132 percent (see Figure 211-02-(2)). Asians now account for 1.7 percent of the total population, Puerto Ricans for 1.3 percent, Dominicans for 0.9 percent, and Colombians for 0.5 percent.

Figure 211-02(3) shows that Rhode Island has been losing population since 1991. Net migration in 1997 alone was -4,145, with 20,499 people coming into Rhode Island, and 24,644 leaving for other states. However, the gap between in-and out-migration is closing, as the economy continues to expand. ((16))

### *Suburbanization*

Rhode Island's industrialization in the 18th, 19th and early 20th century paid little heed to the problems of air and water pollution, sprawl and other aspects of urban ecology. Those conditions exhausted our natural resources. This was exacerbated by population shifts that suburbanized formerly rural areas. There was significant migration from the older central cities particularly from 1960 to 1990, and continuing through 1995 (Figure 211-02(4)). This exodus gave rise to "urban sprawl," a term used to denote land use that results in scattered development that necessitates increased reliance on the automobile.

Some byproducts of sprawl are traffic congestion, squandered resources, and higher taxes to pay for infrastructure improvements. This problem is our environmental legacy, and may be addressed by a focus on sustainable development.

Analysis of Rhode Island's population, its characteristics, and trends reveals a state in a mature stage of development. These changes indicate that the composition and characteristics of the future population will be older and have a greater share of minorities. Such information provides us a basis from which to plan for the future. Moreover, periods of minimal population growth provide an opportunity to develop and refine programs that enable social and economic opportunities to expand in concert with the population.

Figures 211-02(2) (3)

Figure 211-02(4)

## 02-01-02 Labor Force

The Rhode Island labor force was estimated to be 498,000 in 1998, a decrease of 3.1 percent compared to 1990(see Figure 211-02(5)). These figures suggest that the state's labor force is decreasing at a slightly faster rate than the state's population. ((17)) The labor force is composed primarily of men (52 percent), although there has been a slight increase over the five-year period in labor force participation by women. The overall labor force participation rate for men in 1996 was 73.3 percent, and for women 58.9 percent. This is slightly below the national average for that year of 74.9 percent for men and 59.3 percent for women. ((18))

Rhode Island's labor force in the past has been characterized by a lower educational level relative to both New England and the United States. However, more people seem to be completing high school and college than in years previous. The percentage of people 25 years and older who have completed high school stood at 72 percent in 1990. In 1980, this figure was only 61.1 percent, which does indicate a significant improvement. However, it is still lower than the average for the United States (77.6 percent). Those residents completing at least four years of college accounted for 21.3 percent of the 25-years-plus population, which is identical to the national average (Table 211-02-2).

<b>Table 211-02(2)</b>		
<b>EDUCATIONAL ATTAINMENT Population 25 Years and Older (1990; in percent)</b>		
	<b><i>Completing High School</i></b>	<b><i>Completing at Least 4 years of College</i></b>
<i>U.S.</i>	77.6	21.3
<i>Rhode Island</i>	72.0	21.3

**Source:** U.S. Bureau of the Census ( 1996)

The characteristics of Rhode Island's present and future labor force suggest a slow growth which will permit the development of quality programs aimed at improving skills and workplace environments for existing and incoming workers. For example, these might include increases in child care services to permit the continued growth of labor force participation by women, investments in public education that will equip new workers with the skills necessary in the new economy, retraining programs for those displaced by new technology or other market forces, and basic education programs, such as adult literacy and communication skills, for our immigrant population.



Figure 211-02(5)

## 02-03 Employment

The occupations of Rhode Island's labor force correlate to both available skill levels and industry mix. The service sector eclipsed the manufacturing sector in 1988, and has led ever since (Figure 211-02(6)), though the proportion of workers in the manufacturing sector is higher than the national average (18.6 percent in Rhode Island, compared to 15.3 percent in the U.S). The manner in which wage and salary employment is apportioned among different industries and government is depicted in Figure 211-02(7). The occupations of Rhode Island's labor force correlate to both available skill levels and industry mix. The predominance of service sector employment becomes more evident when traded industries alone are considered, cutting construction and government from the pie (Figure 211-02(8)).

The top ten industrial groups by two-digit SIC classification in 1996 were - in descending order - health services, business services, jewelry/silverware, wholesale trade/durable goods, textiles, engineering, accounting and research, banking, wholesale trade/nondurable goods, fabricated metals, and insurance. The top ten industrial groups by contribution to the Rhode Island economy (in terms of payroll and wage multipliers), shown in Figure 211-02(9), were health services, business services, wholesale trade/durable goods, insurance, jewelry/silverware, engineering, accounting and research, banking, wholesale trade/nondurable goods, textiles, and plastic products. ((19))

Looking to the top private-sector employers in 1996, Lifespan (a hospital management group) led with 14, 500 employees, Brown University, and the Diocese of Providence placed second and third respectively. (Table 211-02(3))

<b>Table 211-02(3)</b>	
<b>TOP EMPLOYERS IN RHODE ISLAND (1996)</b>	
Lifespan	14,500
Brown University	6,044
Diocese of Providence	5,406
Care New England	5,245
Southcoast Hospitals Group	4,775
Stop & Shop Co., Inc.	3,905
CVS Stores	3,380
Fleet Financial Group	3,250
Metropolitan Property & Casualty Ins.	3,000
Naval Undersea Warfare Center (NUWC)	2,903
Citizens Financial Group	2,880
Jan Co. (restaurant franchises)	2,800
University of Rhode Island	2,489
Kent County Memorial Hospital	2,200
St. Joseph Health Services of R.I.	1,914
Memorial Hospital of R.I.	1,760
Roger Williams Medical Center	1,500
American Power Conversion	1,500
Raytheon Systems Co.	1,500

Source: *Providence Business News* (1999). Excludes units of government, such as the state of Rhode Island or the city of Providence, which are major employers.

Figure 211-02(6)

Figure211-02(7)

Figures 211-02(8) (9)

While Rhode Island is reducing its dependence on factories as employment generators, another change that is occurring is the location of employment. Between 1985 and 1989, growth in both employment and number of businesses was fastest in rural/suburban Washington County and Kent County. These two areas accounted for 85 percent of total employment growth in the state during that period. However, then as now, Providence County remained the primary employment location, with 65 percent of all jobs and 60 percent of all business establishments (although this proportion appears to be declining). This reflects the dominance of the capital and largest city, Providence.

Certain areas of the state stand out for specialized employment. Newport County, for example, accounts for a high percentage of Rhode Island's employment in engineering and architectural services. The Naval Undersea Warfare Center (NUWC) employs many of them. Bristol County is famous for its boat building industry, the largest in the field being TPI Composites in Warren. The Blackstone Valley, in northern Rhode Island, once famous for textiles, is now known for its electronic components and metal products industries. ((20))

Rhode Island is increasingly seeing its residents commute to out-of-state locations to work. Approximately 4 percent of the state's residents are employed elsewhere. ((21)) Demand for outside labor is especially high in Boston (essentially a one-hour commute from Providence) and in southeastern Connecticut. In the New London, Conn., area for example, huge expansion projects related to two Indian casinos located just across the state border have created thousands of new jobs. Some 2,000 Rhode Islanders are employed there.

Strong growth in the technology-related and financial services industries in both Connecticut and Massachusetts has attracted Rhode Islanders. Income from Rhode Island residents who work out of state is growing at near double-digit rates, compared with only a 2.5 percent gain in wages and salaries of resident workers. One recent analysis characterized the implications for the state's economy of this situation as generally, but not completely, negative because income growth, and thus household demand, would be much slower in Rhode Island if its residents could not find any jobs. Indeed, just a few years ago (1995), when labor markets contiguous to Rhode Island were more relaxed, the state's unemployment rate was 7 percent, and income growth was barely 2 percent. On the negative side, Rhode Island residents working out of state may eventually choose to relocate (Rhode Island loses about 2,000 residents to Massachusetts each year). In addition, Rhode Island loses both tax revenue, and the spending done by workers near their workplace. ((22))

In 1998, employment in Rhode Island establishments rose by only 0.6 percent, placing the state among the nation's slowest growing. The state's unemployment rate has been fluctuating below or slightly above the U.S. rate, effectively masking the impact of a growth rate slower than that of our neighbors.

Rhode Island is thus among the slowest growing states in the nation. Some reasons for this sluggish growth are the state's low-value-added manufacturing industries, relatively high business costs (taxes and fuel costs), and an aging and often unskilled labor force. Manufacturing jobs have been lost to other regions of the country or overseas, or simply to automation and productivity improvements.

The new leading industrial sector, however – services – has been able to provide some high-paying jobs, depending on the industry (e.g., financial services). Some degree of success is attributed to recruitment from the area's colleges and universities. The Northeast-Midwest Institute has commented on this transition, viewing it as a change for the better for the entire New England region. One benefit is the increase in per capita income; another is that the services sector, generally speaking, is less affected by economic cycles or government spending than, for example, nondurable goods manufacturing or the defense industry.

To keep pace with the economic growth, the Economic Policy Council has recommended that the businesses remaining in the state modernize their equipment in order to keep pace with the technological advances in their respective industries, thus remaining competitive, and the labor force upgrade its skills accordingly. Otherwise, anticipated job openings will go unfilled due to a lack of skilled personnel, and the industries (and the jobs they support) will migrate.

## 02-04 Personal Income

Rhode Island's per capita personal income for 1985 was higher than the national average, but has lagged significantly behind the rest of New England, one of the most expensive areas of the country in which to live. Per capita income in 1997 continued that trend (see Table 211-02(4)). Data from the Bureau of Economic Analysis of the U.S. Department of Commerce show that the gap widened between regional and Rhode Island per capita income from 1985 to 1997.

**Table 211-02(4)**  
**PER CAPITA INCOME 1985-1997**

	Per Capita Personal Income		Rank in US		Average Annual Growth Rate
	1985	1997	1985	1997	
<b><i>Rhode Island</i></b>	<b>\$14,395</b>	<b>\$25,760</b>	<b>19</b>	<b>18</b>	<b>6.0%</b>
Connecticut	\$18,513	\$36,263	2	1	7.0%
Massachusetts	\$16,829	\$29,808	5	4	6.0%
Maine	\$12,295	\$22,078	37	37	6.0%
New Hampshire	\$15,827	\$26,772	9	9	5.0%
Vermont	\$12,800	\$22,545	35	31	6.0%
Regional Average	\$15,109	\$27,204	1	1	6.0%
US	\$12,569	\$25,598			8.0%

**Source:** Bureau of Economic Analysis

Average annual pay comparisons show that earnings of Rhode Islanders have remained substantially below that of the New England region and the nation. Rhode Island's average hourly earnings of production workers continues to be the *lowest* in New England and one of the lowest in the United States. Figure 211-02(10) shows that the disparity between U.S. and Rhode Island wages has been consistent at least since 1987. Table 211-02-5 compares wages and hours in the six New England states, the region as a whole, and the United States.

**Table 211-02(5)**  
**NEW ENGLAND ANNUAL AVERAGE**  
**HOURS AND EARNINGS (1998)**

State	Average Hourly Mfg. Wages	Average Hours/Week	Average Weekly Earnings
Connecticut	\$14.83	42.7	\$633.24
Maine	\$13.51	40.6	\$548.50
Massachusetts	\$13.79	42.0	\$579.18
New Hampshire	\$12.78	41.3	\$527.81
Rhode Island	\$11.59	40.6	\$470.55
Vermont	\$13.02	39.6	\$514.80
New England	\$13.74	41.8	\$574.33
United States	\$13.49	41.8	\$563.88

**Source:** Federal Reserve Bank of Boston (1999)

Having a “mature” manufacturing sector dominated by low-wage industries such as textiles and jewelry, has contributed to depressed production wage trends in Rhode Island. Higher paying manufacturing firms, such as Electric Boat, are either highly cyclical or dependent on outside forces. In the 1980s, Electric Boat – builder of the Trident and Seawolf submarines – was the largest private sector employer in the state, providing thousands of skilled, high-pay white collar and blue collar jobs. Today Electric Boat employs about 1,000 people and does not even appear on a list of the top 20 employers in Rhode Island as depicted in Table 211-02(3).

The state's problems in this area were compounded by the recession of the early 1990s. Income growth in the previous decade, fueled by increases in defense spending and in construction and related employment sectors such as finance, insurance, and real estate, lost momentum as the Cold War ended, the computer hardware and software industries “shook out” and downsized, and the real estate market deflated. The economic engine that was capable of offsetting the decline in the traditional manufacturing sector ran out of steam so remarkably that by 1991, Rhode Island had the distinction of having the lowest income growth rate in the United States.



Figure 211-02(10)

In 1990, 9.6 percent of families in Rhode Island were living below the poverty level. That figure was in the double digits in six communities: Central Falls, 22.3 percent; Narragansett, 13.0 percent; Newport, 12.5 percent; Pawtucket, 10.6 percent; Providence, 23.0 percent; and Woonsocket, 13.9 percent (Statewide Planning, 1992). The poverty rate worsened with the worsening state economy, reaching 12.4 percent in 1992. Recently released Census data show that in 1993, the percent of children living in poverty was 18.3 percent – the highest rate in New England. ((24))

Poverty falls disproportionately in Rhode Island, as elsewhere in the country, on women and minorities. In 1989, a year of peak economic performance for Rhode Island, the poverty rate among Rhode Island women was 11.4 percent, compared to 7.6 percent for men. However minorities have a larger percentage of people in poverty, with 25.8 percent for blacks, 27.5 percent for Asians, and 30.9 percent for “other races” compared to 8.0 percent for whites. The median per capita income for blacks in Rhode Island was 58.0 percent that of whites; for Asians the corresponding figure was 60 percent, and for “other races,” 46 percent. (25))

## 02-04-01 Transfer Payments and Personal Income

In 1993, the Rhode Island economy generated in excess of \$20 billion in personal income. Sixty-three percent of this was derived from earnings (i.e., wages, salaries, pensions, proprietors’ income and other labor income); 21.3 percent came from dividends and interest, and 15.6 percent from transfer payments. ((26)) This followed a pattern of *decreasing* contributions to total personal income from earnings, and *increasing* contributions from transfer payments, that is expected to continue well into the next century (Table 211-02(6)).

**Table 211-02(6)**  
**RHODE ISLAND TOTAL PERSONAL INCOME BY SOURCE**

Source	Actual			Projected		
	1978	1983	1993	2000	2005	2010
Earnings	69.1%	63.9%	63.1	64%	63.8%	63.2%
Transfer	17.3%	18.5%	21.3	19.9%	19.8%	20.2%
Dividends, interest, rent	16.8%	17.6%	15.6%	16.1	16.4%	16.6%
	100%	100%	100%	100%	100%	100%

**Source:** US Bureau of Economic Analysis (1995)

Dr. Robert Atkinson, formerly Executive Director of the R.I. Economic Policy Council, observed recently that Rhode Island’s current per capita income level (102 percent the national level) is a consequence of higher than average transfer payments: “Historically,” he wrote, “Rhode Island earnings per capita have been around 50 to 100 percent of the U.S. figure, while transfer payments per capita have been 120 percent or more of the U.S. figure.” ((27)) In 1995, the key components of the state’s transfer payments were:

- Retirement and disability (e.g., Social Security, military and government worker retirement, worker's compensation), 46 percent;
- Medical payments (e.g., Medicare, Medicaid), 35 percent;
- Income maintenance (e.g., SSI, AFDC, food stamps), 8 percent;
- Unemployment insurance, 4 percent; and
- Veterans' benefits, federal training benefits, business bad debts, auto liability payments, and other sources, 6 percent.

The major reason for the increase in transfer payments in Rhode Island is a large jump in government medical payments, from 4.6 percent of *all* income in 1989 to 7.2 percent today. In addition, Rhode Island's share of income from Social Security is 15 percent higher than the national average. Both are a function of the larger proportion of older people in Rhode Island than in most other states. ((28))

Rhode Island has seen some modest increases in personal income in recent years but its growth is lagging behind that of Massachusetts, Connecticut and New Hampshire. The ongoing loss of jobs in manufacturing has resulted in the filling of some of the available jobs by temporary workers who earn less than the already low average hourly manufacturing wage. (These workers, when employed by "temp" employment services, are actually counted among "business service" providers rather than as manufacturing employees.) Although total personal income increased by 5.4 percent between 1996-97, Rhode Island's total personal income ranked 42<sup>nd</sup> in the nation during that period. The per capita income rose 5.5 percent, from 1996. The per capita personal income of \$25,689 in 1997 ranked 16<sup>th</sup> in the nation. ((29))

## **02-05 Production of Goods and Services**

The major divisions in employment in Rhode Island are represented in Figure 211-02(7). In 1998, 94,400 were employed in Rhode Island's goods-producing sector, and 363,600 in the service-producing sector. ((30)). The accuracy of these numbers may be affected by how temporary employees in manufacturing are classified, but Rhode Island's economy is as predominantly service-based as the numbers suggest.

The goods-producing sector yielded \$3.8 billion in earnings in 1999, accounting for 16.5 percent of the state's total personal income. This sector is represented by three broad divisions: agriculture and fisheries, construction and mining, and manufacturing. In the first division, agricultural services, forestry, fisheries and farms produced less than 1 percent of Rhode Island's total personal income in 1996. The second, combined division, construction and mining, contributed 3.1 percent of the total personal income (entirely construction). The third, manufacturing, contributed 10.9 percent of the total, and over 19 percent of the portion of personal income derived from earnings.

The service-producing sector is composed of four broad divisions: transportation, communication, and utilities, wholesale and retail trade, finance, insurance, and real estate (FIRE), and services. Earnings from the service-producing sector topped \$11.4 billion in 1997. This accounted for 47.8 percent of Rhode Island's total personal income. The transportation division contributed 3.3 percent of Rhode Island's total personal income in 1997; wholesale and retail trade accounted for 9.1 percent of the total personal income, FIRE 4.7 percent, and services 20.3 percent.

Employment in the transportation division and the trade division each grew by 2.6 percent from 1988 to 1998. The FIRE division grew by 4.8 percent, and services, by more than 32 percent. ((31))

## **02-05-01 Goods-Producing Industries**

From 1988 to 1998, manufacturing employment in Rhode Island declined by 29.8 percent, to 78,900 in 1998. This compares to a decline of only 4 percent nationwide. On the other hand, personal income derived from manufacturing increased 19 percent from 1987 to 1997. ((32))

The state's early start in industrial development has resulted in an aging industrial base employing primarily unskilled and semi-skilled labor. Manufacturing jobs have been lost to other regions of the country or overseas, or simply to automation and productivity improvements.

Rhode Island manufacturing is characterized primarily by smaller businesses (i.e., less than 100 employees). Also, a higher percentage of these businesses are in the "industries of yesterday," rather than the "industries of tomorrow." Relative to its size, the Rhode Island economy has between 25 and 40 percent fewer growth-oriented, so-called New Economy industries (e.g., electronics, software, and biomedical products) than the national average. These factors have contributed to lower investment in research and development, and in plant and equipment per worker, than in other parts of the country. ((33))

Rhode Island has been called the "Jewelry Capital of the World." Precious metal jewelry, fashion jewelry, crystal boutique and novelty items, recognition insignia such as key chains and pens, awards, and military insignia are manufactured and assembled in Rhode Island and exported worldwide by hundreds of manufacturers. Although jewelry and silverware manufacturing accounts for slightly fewer than 15,000 jobs, more than 35,000 Rhode Islanders are employed in total when manufacturing, distribution, and related services are combined. ((34))



American Tourister, Warren, RI (background); Striper Marina, Barrington, RI (foreground)

Other products important to the Rhode Island economy include textiles, such as lace, narrow fabrics, thread, yarn, screen printing, and fashion dyed cloth; fabricated metal products, which become parts of other products produced all over the world; transportation equipment, recreational boats in particular; instruments and related products, including meteorology equipment, navigation equipment, and medical equipment and supplies; electronic and other electrical equipment, including circuit boards, uninterruptible computer power supplies, and wire and cable assemblies; printed and published products, such as advertising brochures and magazines; rubber and miscellaneous plastic products; industrial machinery and equipment, such as machined parts, tools, dies, and molds; wire and wiring products; chemicals, drugs, and biomedical products; food and kindred products, including Rhode Island's famous coffee syrup; paper and allied products; furniture and fixtures; leather and leather products; boat sails; stone, clay, and glass products; toys; and lumber and wood products, specifically wooden pallets, cabinets, and millwork.

Some of these industry groups would seem to lend themselves naturally to the formation of clusters that could work collaboratively to develop and promote their products. The R.I. Economic Policy Council has already investigated the feasibility of clustering in jewelry, precision metalworking, boatbuilding and related marine industries, seafood products, electronics and instruments, and biomedical industries. ((35)) This included extensive consultation with cluster "working groups" composed of industry leaders, following a model that has produced excellent results in Europe. In this endeavor the Policy Council has worked closely with the Statewide Planning Program and the Rhode Island Economic Development Corporation.

## 02-05-02 Services

Following national trends, service industry jobs now constitute the largest segment of the state's total employment. Health services, business services, education services, and engineering and management services, taken together, are the largest component of the service economy. Engineering and management services are particularly important to the success of the Naval Undersea Warfare Center (NUWC) in Newport.

Health services now constitute the major employment group in Rhode Island, and are expected to continue to dominate the economy into the next century, following the state's demographics – a higher proportion of persons over 65 than in 47 other states. There are presently 14 general hospitals and two voluntary psychiatric hospitals in Rhode Island. All acute care general hospitals are eligible providers under the Medicare programs. In addition, the state is home to 110 nursing and personal care facilities. ((36))

## 02-06 Defense Employment and the Rhode Island Economy

In the years following World War II, significant expansion of the U.S. Navy in Newport and at the "Seabee" base at Quonset Point/Davisville helped the Rhode Island economy weather a postwar decline in textiles and other traditional Rhode Island industries. Defense-related economic activity has continued to be quite significant in the state, involving both the private sector and government, and the goods-producing and service industries. Much of this activity revolves around two employers: Electric Boat, a division of General Dynamics responsible for the manufacture of submarines, and NUWC.



Raytheon Electronic Systems, Portsmouth, Rhode Island

In the last two decades, the character of defense employment in Rhode Island has undergone substantial change. In 1972, nearly 45,000 Rhode Islanders worked in a defense-related field – more than 11 percent of the state's workforce. That year, the U.S. Navy announced it was cutting back operations in Rhode Island, closing the Quonset Point Naval Air Station and relocating the North Atlantic destroyer squadron. Defense employment subsequently dropped to about 10,000. It began growing steadily after the mid-1970s, however, reaching almost 27,000 jobs by 1987, due to the defense buildup during the Reagan Administration. By 1995, it had shrunk again, and had returned to mid-1970s levels (Fig. 211-02(11)).

What was different about defense employment in the mid-1980s was that its growth was concentrated in the private sector rather than in the Defense Department (Figure 211-02(12)). It was also organized into two distinct yet integrated economies. The first focused on shipbuilding and metalworking in Rhode Island's West Bay region and nearby Connecticut, while the second served the Navy's research and development needs on Aquidneck Island. Prime contractors included Electric Boat, which became the state's largest employer, and Raytheon's Submarine Signal Division. Much of Washington County's labor force became tied to Electric Boat's facilities at Quonset Point and in Groton, Conn., while Aquidneck Island's economy revolved around support services for Raytheon and NUWC. An unrelated but significant group of firms developed in the northern and central parts of the state as well, providing a variety of products and services to the military.

In 1991, upward of one-third of the state's labor force derived some portion of their wages from defense-related work. The typical employer was a private, for-profit venture, established after 1953, operating out of a single facility with sales primarily in Rhode Island, with about 50 full-time employees, primarily in the professional, operator, and precision production occupations. Private industry defense-related employment topped 12,000 then; that figure is approximately 7,000 today. ((37)) Between 1990 and 1994, Defense Department prime contracts fell 24 percent in Rhode Island, compared to 9 percent nationally; more than half (52 percent) of the state's defense industry employment was lost from 1988 to 1994, accounting for one third of all jobs lost in Rhode Island during that period. ((38))

Rhode Island has attempted to tackle the problem of "defense conversion." In 1990, the Office of Strategic Planning in the former R.I. Division of Planning began investigating the current and projected job losses associated with converting to a post-Cold War economy. This resulted in an in-depth *Rhode Island Defense Economic Adjustment Study*. This report, a cooperative effort of the public and private sectors and the University of Rhode Island, helped identify the nature and scope of the state's dependency on defense-related employment, as well as the options for responding to the problem. Also assessed was the feasibility of experimental diversification programs and the identification of target industries.

Figures 211-02(11) (12)



The solution to “defense conversion” remains sadly elusive. First, the loss of military contracts has been disastrous to some small firms that had relied 50 percent or more on them for meeting payroll, buying tools and equipment, and simply surviving in a highly competitive business environment. The manufacture of certain products for the military may not readily lend itself to the manufacture of a similar product for the commercial market. Years of what can only be termed *dependence* on military contracts has effectively brought some firms out of the commercial market entirely, making them captive suppliers to the Defense Department. They have found themselves without the capital to re-market themselves, let alone the capital to retool and retrain their workers.

Technology transfer from the defense to commercial applications is not occurring readily. For example, while the Naval Undersea Warfare Center has over 700 active patents, only one has been licensed commercially. While NUWC has signed over 22 cooperative research and development agreements with industry, almost all have been with companies outside Rhode Island, and most of NUWC’s work with industry has been with defense contractors. ((39))

## **02-07 Job Loss and Gain**

The recession of the early 1990s hit New England the hardest, with the region losing a greater proportion of jobs than any other region in the country. ((40)) Where other states in New England and elsewhere appear to be recovering, Rhode Island is lagging. This is particularly evident in the manufacturing sector, where losses nationwide in mid-size and larger firms have been offset by gains in employment in smaller ones. Rhode Island was one of only three states (Delaware and Hawaii being the others) that lost jobs even in small manufacturers from 1990 to 1994.

These losses become all the more sobering when the numbers are put to them. In 1978, Rhode Island reached its peak in manufacturing employment, with 136,200 jobs. Then came a recession, after which an interim peak has hit in 1984 – 124,200 jobs in manufacturing. In the period 1984-1995, however, even during the supposed “boom times,” manufacturing fell every year but one – an average loss of 3,500 jobs in this sector alone each year. By 1995, there were only 86,100 wage and salary jobs in manufacturing. This figure was 37 percent below the 1978 peak, and 31 percent below the 1984 peak, accounting for losses that have been termed “enormous” and comparable only to the flight of the textile industry in the mid-1950s. ((41))

These trends in manufacturing are expected to continue. Recent upticks in employment have been due to an expanding services sector, particularly health services and business services. The growth in services has even been called “explosive,” adding between 2,000 to 8,000 jobs each year since 1969. Total service jobs increased from 74,700 in 1969 to a record 363,000 in 1998 – a jump of 288,300 jobs. ((42))

Atkinson concluded in his recent review of the Rhode Island economy that “the patterns of growth in the services division appear to reflect a range of recent social and economic dynamics.” Most of these “dynamics” are symptomatic of a declining economy, including:

- Economic stagnation, with no employment growth in many sectors and subsectors;
- Economic restructuring, with growth in personnel supply agencies, job training, and engineering and management proprietorships;
- Changes in demographics (increase in nursing homes, residential care, home health care and child care); and
- Social dysfunction (growth in outpatient services, and individual and family services). ((43))

Overall expansion aside, downsizing has also reached the service sector. Figure 211-02(13) shows that workers in transportation, wholesale and retail trade, FIRE and other services accounted for nearly half (49 percent) of workers on unemployment insurance (UI) benefits in 1995. Among the most affected occupations were professional, technical, and managerial positions (21 percent of the insured unemployed), clerical and sales (24 percent), and other service positions (11 percent); these were all significant increases from 1991. ((44))

These figures do not represent workers in these occupations who have exhausted their unemployment benefits or did not qualify in the first place. In April, 1997, the R.I. Department of Labor and Training estimated that the insured unemployed represented 71 percent of the 23,600 individuals classified as the “total unemployed.” The year previous, 89 percent of the total unemployed collected benefits.

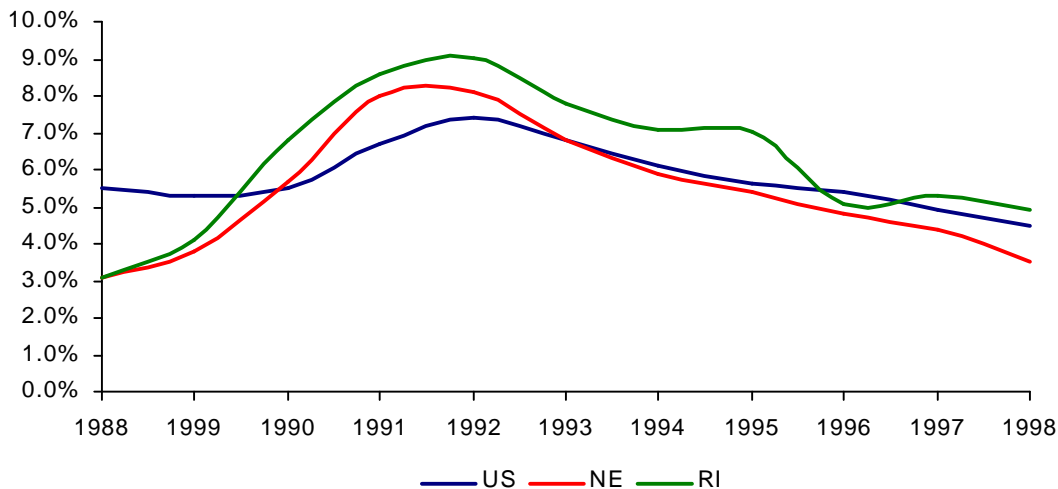
The sex and age of workers on UI has shifted slightly since 1991, when 43 percent of the insured unemployed were males under 45 years of age. In 1995, the figure for this group had decreased to 37 percent (Figure 211-02(14)). Females under 45 accounted for 28 percent of the insured unemployed in 1995, up from less than 25 percent in 1991. ((45))

A comparison of Rhode Island unemployment rates with those of the U.S. and New England is given in Figure 211-02(15). While unemployment in Rhode Island has dipped below the national rate for the first time in many years, it still is higher than the New England average.

The recent loss of high paying jobs in the manufacturing and defense sectors has resulted in lower per capita incomes for Rhode Islanders. According to the Economic Council, per capita income declined in the state from 7 percent above the national average in 1988 to 2.3 percent above in 1997. Compared to the national average, each Rhode Island worker has \$3,000 less per year to spend. Job growth has been in service sector jobs that are lower paying than the manufacturing jobs being lost, and in self-employment and part-time work. ((45))



**Figure 211-02 (15)**  
**COMPARISON OF US, NE, RI UNEMPLOYMENT**  
**RATES**  
**1988-1998**



**Source:** Rhode Island Department of Labor and Training

There does, however, appear to be a change in some types of service jobs entering the state. A report by the Northeast-Midwest Institute released in the summer of 1999 claims that Rhode Island has “successfully” transitioned into a service sector economy, offering “highly paid, highly skilled jobs.” While this may be true in the growing financial services sector, comparisons of the growth of service employment to the decline in per capita income suggest this is not the case overall.

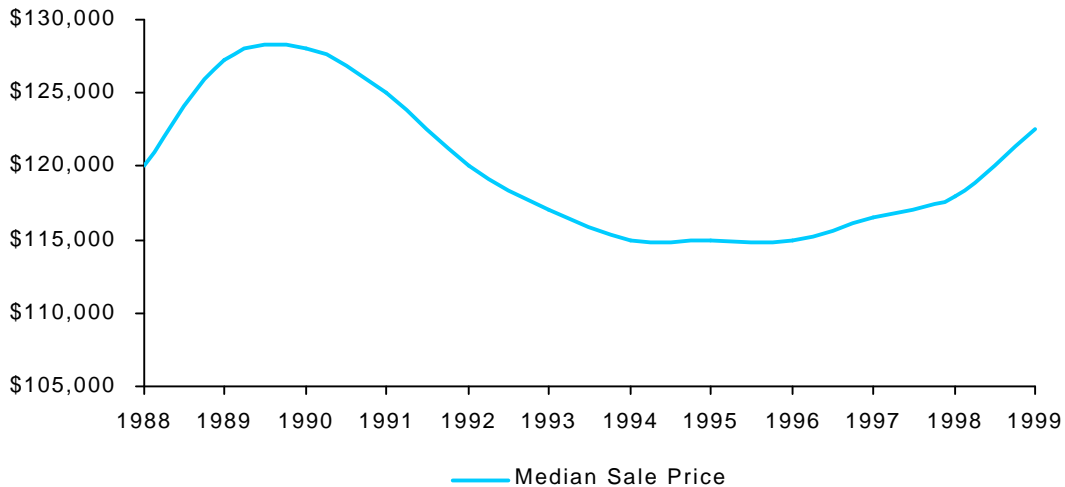
## 02-08 Housing Prices

### *Cost of Living, and Taxes*

When the recession of the early 1980's ended in 1983, housing prices in Rhode Island were driven up by high demand and little new construction to meet it. In the early 1990's housing prices declined due to a nationwide recession, the state's banking crisis, and decreasing population. What attracts people to Rhode Island, in addition to its fine quality of life, are its relatively low housing costs. It is estimated that Boston's housing prices are 64 percent higher than Rhode Island's.

After seven years of fluctuating housing prices, from a low median of \$88,000 in 1986 to a high of \$128,000 in 1989, prices have been stable since 1994. (See Figure 211-02(16).) Realtors attribute this leveling of prices to people's increasing confidence in the state's economy, lower interest rates and more people working. ((46))

**Figure 211-02 (16)**  
**MEDIAN SALE PRICE OF SINGLE FAMILY**  
**HOMES**  
**IN RHODE ISLAND**  
**1988-1998**



**Source:** Providence Business News

Fluctuations in oil prices, increasing taxes on gasoline and personal property, and high costs for electricity have been major contributors to the region's overall high cost of living. With high demand for electricity, extremes in temperature, and no indigenous supplies of fossil fuels, New Englanders have had to pay high energy costs. It is hoped that the restructuring of the electric industry will lead to cost savings through increased competition that will ultimately be passed along to the consumer. Rhode Island is the first state to have implemented legislation allowing for restructuring of its electric industry.

According to the *Tax and Spending Data Book* published by R.I. Public Expenditure Council (RIPEC) in 1999, Rhode Island's state and local tax burden fell from 14<sup>th</sup> to 20<sup>th</sup> in the nation from 1995 to 1996. The state's property taxes, however, remained among the highest in the nation. Property tax collections relative to personal income were the fifth highest in the country. Tax relief in the form of a phased reduction in the automobile property tax to zero by the year 2005 was enacted in 1998. This followed phased reduction in the "piggy-back" income tax from 27 percent to a proposed 25 percent of federal tax liability.

The tax burden in Rhode Island is par with the rest of New England (see Table 211-02(7)). The state's sales tax at 7 percent, is the highest in the region and the gasoline is second highest at 28 cents per gallon behind Connecticut's 32 cents. However, New Hampshire, Vermont, and Maine recorded higher property tax collections, per \$1000 of personal income, than Rhode Island.

**Table 211-02(7)**  
**STATE AND LOCAL PROPERTY TAX COLLECTIONS PER \$1,000 OF PERSONAL**  
**INCOME FISCAL YEAR 1996 SELECTED STATES**

State	Amount	Rank
United States	\$34.35	
New Hampshire	60.10	1
Vermont	54.80	2
Maine	54.18	3
New Jersey	54.04	4
Rhode Island	48.75	5
Montana	48.33	6
Alaska	46.95	8
New York	46.34	9
Nebraska	44.90	10
Connecticut	44.76	11
Massachusetts	38.05	17

**Source:** RIPEC, *How Rhode Island Compares* (1999)

## **02-09 Land Use and Zoning**

Rhode Island, the state having the smallest land area, measures 1,050 square miles. The state's greatest length, is 48 miles; its greatest width, 37 miles. Rhode Island's size is often cited as a factor contributing to its economic malaise. In the nation's smallest state, land suitable for developing industrial facilities is scarce. Industry requires good transportation access, the availability of utilities, and limited physiographic constraints. Some of this type of land has been converted to uses other than industrial.

From 1977 to 1997, the total number of industrial-zoned sites increased from 283 to 341, or 20 percent. However, total industrial acreage decreased from 35,403 to 32,455 acres, a loss of about 7 percent. Although industrial acreage has decreased, in general it has not been lost to other uses, residential or commercial. Once vacant industrial zoned land has mostly been absorbed into industrial use, and some acreage presumably has been rezoned. The amount of acreage that is actually in industrial use increased from 19 to 34 percent. It appears that industrial-zoned land is decreasing in quantity but improving in quality.

As of 1999, 32,455 acres were zoned industrial. The inventory of industrial-zoned land shows that 11,116 acres were in industrial use, the remainder being vacant (undeveloped) or in other uses. The state *Industrial Land Use Plan* estimates that 13,067 acres of industrial land will be needed in the year 2020. The plan also indicates that 15,224 industrial acres in the state were vacant, but only 1845 acres have public water, public sewers, and no physiographic constraints. These vacant acres include relatively small, scattered parcels with poor access to interstate highways and some are in the middle of residential neighborhoods. Many sites lack basic infrastructure. These conditions are indicated in the breakdown of vacant industrial sites given in Table 211-02(8).

The *Industrial Land Use Plan* derived estimates of the amount of industrial acreage required in the year 2020 for six categories of Rhode Island industries, based on the number of individuals employed and the employment densities (the number of employees per acre) expected in each category. The number of employees multiplied by the relevant employment density yielded the required industrial acreage. In this way, the *Industrial Land Use Plan* concluded that a total of 13,067 acres of industrial land would be required in 2020. ((47))

## 02-09-01 Agricultural Land

A century ago farming accounted for more than three-quarters of Rhode Island's land use. Today farmland totals approximately 11 percent of the state's total land area. According to the U.S. Department of Agriculture, Rhode Island had 700 farms totaling 63,000 acres in 1997, which is approximately a 14 percent decrease in acreage from 1987. As Table 211-02(8) illustrates, the number of farms and acreage have remained the same since 1991.

**Table 211-02(8)**  
**RI FARMS: NUMBER, SIZE AND LAND IN FARMS 1987-1996**

Year	Farms	Average Acres	Acres (Thousand)	Value Added & Net Farm Income (Million)
1987	770	95	500	62.5
1988	770	95	490	64.5
1989	770	95	460	59.2
1990	740	95	440	56.0
1991	700	94	440	57.0
1992	700	90	440	62.1
1993	700	90	440	65.9
1994	700	90	440	68.6
1995	700	90	440	69.7
1996	700	90	430	72.1
Percent change 1987 1996	-9.1	-5.3	-14.0	15.2

**Source:** US Department of Agriculture, *New England Agricultural Statistics*

Table 211-02(8) also shows that despite the decline in farms and farmland, the value added to the state's economy by the agricultural sector has increased by 15.2% between 1987 and 1996. Much formerly prime farmland has become shopping centers or housing subdivisions. However, since abandonment of farmland in Rhode Island has been more prevalent than its conversion to other uses, some of the land lost over the last 140 years could be brought back into agricultural production.

## **02-10 Natural Resources**

### **02-10-01 Sustainable Development**

Rhode Island's industrialization in the 18th, 19th and early 20th century paid little heed to the problems of air and water pollution, sprawl and other aspects of urban ecology. Those conditions exhausted our natural resources. The problem – our environmental legacy – is being addressed by a focus on sustainable development. Sustainable development is a process whose goal is to mitigate or eliminate the environmental problems facing society while simultaneously creating economic opportunities; it is a process to enhance the quality of life and save the environment. It recognizes that economic development and environmental quality are not mutually exclusive.

In order to begin the process of sustainability, several indicators need to be identified that help evaluate a community's economic, environmental, and social sustainability, among which are distribution of jobs and income, percentage of wages earned and spent within a community, and percentage of development occurring annually within an urban area. ((48)) Over the course of several years, Rhode Island urban policy has used similar indicators to determine the feasibility of programs such as enterprise zones and brownfields development, and where these programs might best be targeted.

There are now ten enterprise zones in Rhode Island, concentrated in the older commercial and industrial areas of the state: downtown Providence; the Port of Providence; Central Falls/Valley Falls; the Moshassuck Valley (Lincoln and Pawtucket); Woonsocket/Cumberland; West Warwick; Mount Hope (Bristol and Warren); East Providence; Portsmouth/Tiverton, and Arlington (Cranston).

The enterprise zone program is designed to provide an aggressive and comprehensive tax incentive package to businesses willing to relocate or expand in an enterprise zone. The increased economic activity from such relocation or expansion is expected to revitalize the old manufacturing centers. To qualify for the incentives, a company must increase its workforce by 5 percent per year and increase its total Rhode Island wages from the previous year. The program also offers financing, job training, and permit expediting on the state and local level.



Regarding brownfields, the state has established two related programs for Industrial Property Remediation and Reuse (coordinated by the R.I. Department of Environmental Management) and Mill Building Revitalization (coordinated by the R.I. Economic Development Corporation and local officials). The first is intended to address environmental liabilities on contaminated properties and speed their cleanup, facilitating reuse. The second provides tax credits for renovating vacant industrial buildings and operating businesses within them. These programs are intended to promote the expansion of industrial development in urban areas by encouraging industry to work with existing local and regional resources.

The Rhode Island Comprehensive Economic Development Strategy (CEDS) program, undertaken in conjunction with the U.S. Economic Development Administration (EDA), is one vehicle the state uses to promote sustainable development. Communities, academic institutions, government agencies, and private non-profit development corporations are invited to submit projects for EDA funding that addresses economic development objectives. Proposals that can revitalize brownfields, deteriorating downtown areas, or other underutilized portions of the “built environment” receive high scores in the screening process that selects a “priority project” list. Extra points are also received for locating a project in an enterprise zone.

## **Renewable Energy Resources**

To ensure that future generations are not left a legacy of vanished or depleted resources, *The Rhode Island Energy Plan* (Element 781 of the State Guide Plan) recommends the development of permanently sustainable energy resources that are environmentally benign and economically feasible. Even from a purely economic standpoint, this policy is key. Failure to exploit even modest opportunities for indigenous and renewable sources of energy that fit these criteria increases reliance on costly alternatives that could be avoided, postponed, or replaced – such as the construction of a new power plant, or continued dependence on fossil fuels produced outside the region that are subject to pricing policies beyond our control. ((62))

Renewable energy resources may include active and passive solar systems, wind energy, hydropower, and wood energy. They are not without their own engineering and environmental costs, but do have the advantage of being indigenous and renewable. Some systems can pay for themselves to the extent that, over the years, they replace the non-renewable fossil fuels used for the same purpose (heat, light, or power generation).

A complete substitution of fossil fuels by renewable resources is unlikely in the foreseeable future. However, fossil fuels will continue to play a role in the production of acid rain and ozone, with impacts on air quality and quality of life in Rhode Island. These are environmental costs that the state has an interest in avoiding.

Wider use of renewable energy can improve the business climate. It can help satisfy environmental objectives while addressing what has always been a disincentive to business location in New England – high energy costs owing to our position, literally, at the end of the pipeline. The phase-in of renewables can be complemented by a re-dedication to energy conservation, in recognition and appreciation of the fact that energy is too valuable a resource to waste or squander.

## **02-10-02 Narragansett Bay**

Narragansett Bay is the state's most valuable natural resource, providing food, passage for ships and barges, recreational activities, and thousands of jobs. The Bay is the source of excellent shellfish, and many Rhode Islanders supplement their incomes by shellfishing. In 1989, Bay shellfishing revenues exceeded \$70 million. The R.I. Department of Environmental Management has undertaken shellfish "transplant" operations, where clams from polluted parts of the Bay are transported to cleaner waters to depurate and thus increase the harvestable shellfish population.



Narragansett Bay, Bristol Harbor, Bristol, Rhode Island

The U.S. Army Corps of Engineers is preparing an environmental impact statement for maintenance dredging in the Upper Bay, facilitating tanker and freighter traffic into Providence. Dredging in the Quonset Point/Davisville area has also been discussed.<sup>9</sup>

No one can discount the Bay's impact on the Rhode Island tourism industry. Bay activities generate approximately \$1.4 billion annually in travel, tourism, and recreation-related sales. The Bay is home to manufacturers of top-shelf pleasure boats, yachts, sails, and other boating equipment, who together contributed more than \$53 million to the state's economy in 1995. ((49))

Narragansett Bay is also one of the most extensively studied estuaries in the country, and is part of the U.S. Environmental Protection Agency's National Estuary Program. A *Comprehensive Conservation and Management Plan* for the Bay was adopted as an element of the State Guide Plan in December 1992. This represented a commitment to over 500 specific actions to improve the water quality of the Bay, to protect diminishing high quality resource areas along the Bay, and to manage more effectively the Bay's living resources. Involved in the implementation of the Plan are

the R.I. Departments of Environmental Management, Administration, and Transportation, the R.I. Coastal Resources Management Council, the Mass. Departments of Environmental Protection and Environmental Management, and Mass. Coastal Zone Management. The necessary investment in the Bay is estimated to exceed \$392 million. ((50))

Table 211-03(9), developed by the Narragansett Bay Project, represents categories of critical resources for the ecological health and public benefit of Narragansett Bay and its drainage basin. ((51))

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**Table 211-03(9)**  
**ECOLOGICALLY CRITICAL RESOURCES FOR THE**  
**HEALTH OF NARRAGANSETT BAY**

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- *Estuarine wetlands:* Salt marshes, tidal flats, eelgrass beds.
- *Freshwater wetlands:* Open water wetlands, emergent wetlands, scrub-shrub wetlands, forested wetlands.
- *Fishery habitat:* Anadromous fish runs, spawning and nursery areas, current and historic shellfish beds.
- *Habitat resources:* Habitat for rare species or exemplary natural communities, subtidal and intertidal areas of high biotic diversity.
- *Nutrient sensitive resources:* Threatened embayments, threatened salt ponds, threatened freshwater ponds, threatened bogs and fens.
- *Coastal features:* Natural dunes, barrier or coastal beaches, rocky intertidal shores.
- *Outstanding resource waters.*

**Critical Resources for Public Health or Recreational Needs**

- *High priority surface water identified through the Rhode Island Clean Water Strategy Prioritization Process.*
  - *Water supply areas:* Surface water reservoirs and groundwater aquifers.
  - *Special use areas:* Significant scenic sites, public recreational areas.
  - *Natural hazard areas:* Floodplains, erosion areas, areas potentially affected by predicted sea level rise. ((51))
-

### *Shipping and Related Industries*

Today, most shipping in Rhode Island traverses Narragansett Bay, and includes of petroleum, automobile, and lumber imports. Marinas, marine cargo handling, towing and tugboat services, and miscellaneous water transportation services, with their respective economic multiplier effects, contributed \$23 million to the state's economy from wages in 1998; boat building and ship building (primarily submarines for the Defense Department at Electric Boat in Quonset), added \$174 million.

The Port of Providence, at the head of Narragansett Bay, has a 40-ft. channel, ranging from 600 to 1,300 feet wide. Maintenance dredging of the Providence Harbor and River may begin in 2002. Bulk and general cargo is handled at 27 private and public docks in Providence and East Providence. The Port is a distribution center for petroleum products, and terminal for such cargos as scrap iron, lumber, chemicals, cement, asphalt, and steel. Municipal Wharf in Providence has 4,750 ft. of berthing space, 35- to 40-ft. depth at mean low water, rail spurs, 265,000 sq. ft. of transit and storage space, and more than 45 acres of open storage areas.

The R.I. Economic Development Corporation operates fully-developed piers at former naval facilities at Davisville. These piers handle automobiles and bulk and general cargo. Quonset Point/Davisville (QPD) also has a railhead and an air terminal with an 8,000-ft. runway for intermodal cargo handling.

Areas of the Port of Providence and QPD have been designated Rhode Island Foreign Trade Zones by the Federal Trade Commission. United States Customs District Five is located in Providence, and there are five custom house brokers in the city. ((52))

### *Narragansett Bay and the U.S. Navy*

The Navy's Construction Battalion ("Seabee") station at Quonset Point has been decommissioned, bringing an important part of military history in Rhode Island to a close. However, the Navy remains a significant presence on Aquidneck Island. The Naval War College as viewed from the Newport Bridge is an easily recognizable symbol of that presence. Including civilians, permanent active duty personnel and students, the Navy employs 7,756 people in Rhode Island. ((53))

Of particular importance is the Naval Undersea Warfare Center in Newport, employing over 2,000 people. The Center is responsible for a large part of research and development in Rhode Island in terms of expenditures, scientists employed, and patents received. The total 1995 budget of the Newport Division was \$860 million, with \$350 million dedicated to research, development, testing, and evaluation of underwater military equipment, with \$210 million of that being immediately outsourced to industry (not all of which was located in Rhode Island, among companies such as Bendix, Electric Boat, Magnavox, Martin Marietta, and Raytheon).

In 1995, NUWC was credited for 37 percent of all patents issued to Rhode Islanders; the Center's portfolio includes over 700 patents available for licensing. The Center currently employs 66 percent of the electrical engineers in Rhode Island, and 53 percent of the state's mechanical engineers. Much of NUWC technology, however, is mission-specific to the Navy and has few commercial applications ((54)), limiting it as a vehicle for "defense conversion."

### *Narragansett Bay Fisheries*

Today, the quahog, or hard clam, represents Narragansett Bay's primary commercial fishery. Other commercial fisheries include lobster, long-finned squid, winter flounder, scup, silver hake, squirrel hake, summer flounder, ocean pout, butterfish, cod, and menhaden. There are also significant recreational fisheries for bluefish, winter flounder, and tautog.

The Statewide Planning Program identified commercial fishing as a "target industry" in the state's *Economic Development Strategy* (1986). The amount of fish landed in the Port of Galilee/Point Judith area – where Block Island Sound, Rhode Island Sound and Narragansett Bay converge – ranks the port second in New England by value (\$43.6 million) and first by weight. ((55))

In recent years fishing effort among the boats of Point Judith has turned to so-called "underutilized species," including mackerel, butterfish, and squid. This has helped Rhode Island fishermen weather the collapse of the North Atlantic groundfish stocks better than their counterparts in Gloucester and New Bedford, Mass., who traditionally have concentrated on cod, haddock, and flounder. However, there is some potential – though it has not been widely practiced – that Massachusetts fishermen would shift their effort to the underutilized species worked by fleets from Rhode Island. Displacement of Rhode Island fishing boats or reductions in catch and income would each have a direct impact on the state's economy. Fishing boat crew are not eligible for unemployment compensation, and fishing families typically function on a single income from fishing. ((56))

As of 1998, commercial fishing accounted for \$5.4 million in wages and a contribution to the Rhode Island economy, with multiplier effects from wages, of \$11.8 million. Fish and shellfish landings totaled 135.6 million pounds and were valued at \$75.8 million. ((57))

There are 14 seafood processors in the Port of Galilee. Most of the fish processed in Galilee is sold in national and international markets with a minor portion sold locally. Much of the processing capacity is for the underutilized species, which is unmatched anywhere else in the region. Some of these businesses also import and export harvested product that was not landed in Galilee. ((58))

The *Port of Galilee Master Development Plan* done by the RI Economic Development Corporation in 1999 outlines a 10-year investment program for port infrastructure and recommends an improved port management plan, tourism facilities development, a parking plan and an effort to pinpoint new amenities and attractions for the area. This master plan draws upon studies over the years by the R.I. Departments of Environmental Management and Transportation, the Statewide Planning Program, and the Graduate Curriculum in Community Planning and Area Development at the University of Rhode Island.

## **02-10-03 Parks and Recreational Areas**

There are 9,000 acres of state parks and recreational areas in Rhode Island that accommodated 3,423,000 day and overnight visitors and generated \$2,584,000,000 in revenues in 1992. ((59)) There are 40 public salt water beaches and several freshwater beaches. The East Bay Bike Path enables walkers and cyclists to enjoy 14.5 miles of scenic beauty between Providence and Bristol. Rhode Island's recreation and cultural resources collectively contribute to the state's billion-dollar tourist industry.



Colt State Park, Bristol, Rhode Island

Cultural activities are enjoyed throughout Rhode Island in theaters such as the Trinity Repertory Company and the Providence Performing Arts Center; museums, art galleries and libraries that house details of the state's colorful history and culture.